

Guidelines for Reporting VOC Emissions from Component Leaks

December 2013

The South Coast Air Quality Management District (District) Rule 301 (e) requires facilities operation under District permit to annually report their emissions from all equipment (permitted and non-permitted) to the District. The following types of fugitive emissions should be reported as part of the District's Annual Emissions Reporting (AER) Program:

- Permitted Annual Fugitive Emissions – Oil/Gas Production and Chemical Plants
- Non-permitted Annual Fugitive Emissions– Oil/Gas Production and Chemical Plants
- Permitted Annual Refinery Fugitive Emissions
- Permitted Annual Fugitive Emissions – Terminals/Depots

In order to estimate fugitive emissions (component leaks) from the petroleum industry (i. e., oil and gas production facilities, refineries, marketing terminals) and chemical plants, as well as guidelines for component counting and leak quantification, please refer to AQMD's "Guidelines for Fugitive Emissions Calculations", dated June 2003. A copy of the document may be obtained from the District or can be downloaded at www.aqmd.gov/aer/aer.html.

SPECIFIC INSTRUCTIONS

Following are instructions on how to report fugitive emissions using the new AER format. For example purposes, facility ABC with the ID# 999117 has permitted equipment with fugitive emissions, covered by application A/N# 123456, Permit to Operate F12345, permit device D1, AER device ES1, as shown below:

South Coast AQMD Air Quality Management District

AER Home Access Facility Facility Home

Facility ID: 999117 ABC Reporting period: 2012

Form data is successfully saved.

Build Reporting Structure

Emission Sources (ES) Classification

This section contains facility permit profile. Please make sure that every device has a specified Emission Source (ES). New emission sources can also be added.

EPA TANKS Software DATA IMPORT - [Click here](#) for more instructions.

Displaying 1 emission sources.

A/N: Permit NO:
AER Device ID: Permit Device ID:

[Search Emission Sources](#)

[Add New Emission Source](#)

Search: [Print Preview](#)

Action	A/N	Permit NO	Permit Device ID	Permit Equipment Description	AER Device ID	ES Name	Source Group	Has Emissions	Equipment	ES Status	Process Reference
Open	123456	F12345	D1		ES1					Work in progress	

Showing 1 to 1 of 1 entries

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Click the “Open” link under the “Action” column and the following screen appears. Fill out the mandatory fields marked by an asterisk and optionally, fill out the other fields. For facility ABC, A/N 123456 describes Unit 1, in normal operation and is comprised of vessel V1 and pump P1:

Facility ID: 999117

Edit Emission Source

Providing correct information and proper selection categories would help to classify emission source.

Permitted ☒

A/N 123456

Permit No F12345

Permit Device ID D1

Permit Equipment Description

AER Device ID ES1

ES Name Unit 1

Operating ES Status Normal Operation *

Comment Vessel V1, pump P1

Emission Source Group Determine Emission Source Group Type *

Design Capacity

?

Save and return to List of Emission Sources or Save and proceed to Process Reporting or Cancel

Optional: Save and Mark as Completed Click here to [delete](#) this emission source and associated data.

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When clicking on the “Determine Emission Source Group Type” button, the following selection window appears:

Determine Emission Source Group Type

Permitted	A/N	Permit No	Permit Device ID	Permit Equipment Description	AER Device ID	ES Name
Yes	123456	F12345	D1		ES1	Unit 1

- External Combustion Equipment (e.g., boiler, dryer, oven, furnace, heater, afterburner, flare, kiln or incinerator) [click here](#) to select one of the following Equipment:
- Internal Combustion Equipment (e.g., internal combustion engine (excluding vehicles), turbine or micro turbine) [click here](#) to select one of the following Equipment:
- Spray Coating/Spray Booth (e.g., coatings, solvents, adhesives, etc.) [click here](#) to select one of the following Equipment:
- Other Use of Organics (e.g., coatings, solvents, inks, adhesives, etc.) except in Spray Coating/Spray Booth, [click here](#) to select one of the following Equipment:
- Storage Tank (e.g. Underground, Aboveground, Small Tanks, Dispensing Systems) [click here](#) to select one of the following Equipment:
- Fugitive Components (Emission Leaks from Process Components per Rule 1173 and 1176) [click here](#) to select all applicable Equipment:
- Other Processes (does not fit in any of the groups mentioned above), click [click here](#) to mark "Other Process Equipment":

Save Cancel

Save and return to List of Emission Sources or Save and proceed to Process Reporting or Cancel

Optional: Save and Mark as Completed Click here to [delete](#) this emission source and associated data.

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Go to option #6: Fugitive Components and click on the link provided. Let's assume that the fugitive components for this emission source are: 5 valves in gas/vapor service, 4 valves in light liquid service, 2 PRV's, 1 pump in light liquid service, 20 connectors, 1 sight-glass, 6 flanges, and 1 drain.

On the next screen, check all the applicable boxes for the above component types:

Determine Emission Source Group Type

- External Combustion Equipment (e.g., boiler, dryer, oven, furnace, heater, afterburner, flare, kiln or incinerator) [click here](#) to select one of the following Equipment:
- Internal Combustion Equipment (e.g., internal combustion engine (excluding vehicles), turbine or micro turbine) [click here](#) to select one of the following Equipment:
- Spray Coating/Spray Booth (e.g., coatings, solvents, adhesives, etc.) [click here](#) to select one of the following Equipment:
- Other Use of Organics (e.g., coatings, solvents, inks, adhesives, etc.) except in Spray Coating/Spray Booth, [click here](#) to select one of the following Equipment:
- Storage Tank (e.g. Underground, Aboveground, Small Tanks, Dispensing Systems) [click here](#) to select one of the following Equipment:
- Fugitive Components (Emission Leaks from Process Components per Rule 1173 and 1176), [click here](#) to select all applicable Equipment:
 - ☒ Valves Gas/Vapor
 - ☒ Valves in Light Liquid Service
 - ☐ Valves in Heavy Liquid Service
 - ☐ Inaccessible Valves Gas/Vapor
 - ☐ Inaccessible Valves Light Liquid
 - ☒ Pumps in Light Liquid Service (Double Mechanical / Tandem Seals)
 - ☐ Pumps in Heavy Liquid Service (Single Mechanical Seal)
 - ☒ Pressure Relieve Valves (PRV)
 - ☐ Compressors
 - ☒ Connectors
 - ☒ Flanges meeting ANSI 16.5-1988
 - ☒ Process Drains with P-trap or Seal pot
 - ☒ Other (including fittings, hatches, sight-glasses, meters, etc)
- Other Processes (does not fit in any of the groups mentioned above) [click here](#) to mark "Other Process Equipment"

Save **Cancel**

Save and return to List of Emission Sources or **Save and proceed to Process Reporting** or **Cancel**

Optional: **Save and Mark as Completed** Click here to [delete](#) this emission source and associated data.

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Click the "Save" button and proceed to Process Reporting. (If you are not ready to input the data at this time, click the "Save and return to List of Emission Sources" button to work on another emission source.) The following window displays 8 processes corresponded to the component types:

Facility ID: 999117 Form data is successfully saved.

Process References

A/N	Permit NO	Permit Device ID	Permit Description	AER Device ID	ES Name	Source Group	Emissions?	Equipment	ES Status
123456	F12345	D1		ES1	Unit 1	Fugitive Components	Y	Fugitive	Work in progress

Process ID **Source Group** **Process Name** **Process Status** **Operation Type**

P1	Fugitive Components		Work in progress	routine
P2	Fugitive Components		Work in progress	routine
P3	Fugitive Components		Work in progress	routine
P4	Fugitive Components		Work in progress	routine
P5	Fugitive Components		Work in progress	routine
P6	Fugitive Components		Work in progress	routine
P7	Fugitive Components		Work in progress	routine
P8	Fugitive Components		Work in progress	routine

OK

Search: **Print Preview**

Action	A/N	Permit NO	Permit Device ID	Permit Equipment Description	AER Device ID	ES Name	Source Group	Has Emissions	Equipment	ES Status	Process Reference
Open	123456	F12345	D1		ES1	Unit 1	Fugitive Components	Y	Fugitive	Work in progress	Reference

Showing 1 to 1 of 1 entries

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To report emissions, click on the “P1” link. Note that the following window shows the component type as Valves Gas/Vapor:

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AER Home Access Facility Facility Home

Facility ID: 999117 · ABC · Reporting period: 2012

« Back to Emission Source Process Reference

Fugitive Components

This section contains emission data relative to leakage from process components as specified in Rule 1172 and Rule 1176. Please visit the supplemental instructions for more information on component identification, count, and emission calculation. Detailed instructions are available by clicking on Help icon in the tool bar.

Optional: Mark as Completed

Process	AER Device ID	Permit Device ID	A/N	Process ID	Rule #	Component Type
Open	ES1	D1	123456	P1		Valves Gas/Vapor

Click here to [delete](#) this process.

Throughput

Annual Throughput
Open

Criteria Emissions (lbs)

Pollutant	EF	Unit	EF Data Source	Overall CE	Emissions
Open	VOC	lbs /			

Toxic (TAC/ODC) Emissions (lbs)

TAC/ODC Group	CAS #	EF	Unit	EF Data Source	Overall CE	Emissions
Add New						

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Under “Process”, click the “Open” link and select Rule 1173 in the mandatory field marked with an asterisk and optionally fill out other fields:

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« Back to Emission Source Process Reference

Fugitive Components

This section contains emission data relative to leakage from process components as specified in Rule 1172 and Rule 1176. Please visit the supplemental instructions for more information on component identification, count, and emission calculation. Detailed instructions are available by clicking on Help icon in the tool bar.

Optional: Mark as Completed

AER Device ID	Permit Device ID	A/N	Process ID	Rule #	Component Type
ES1	D1	123456	P1	1173	Valves Gas/Vapor

Click here to [delete](#) this process.

Criteria Emissions (lbs)

Pollutant	EF	Unit	EF Data Source	Overall CE	Emissions
Open	VOC	72.0000 lbs / components	AQMD default		360.00

Toxic (TAC/ODC) Emissions (lbs)

TAC/ODC Group	CAS #	EF	Unit	EF Data Source	Overall CE	Emissions
Open	Benzene	71432	7.20000e-1 lbs / components	Material Balance		3.600e+0

[Add New](#)

« Back to Emission Source Process Reference

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Data must be saved before moving on to next step. Clicking on the “Save” button will bring user back to data enter screen for process P1 as shown:

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AER Home Access Facility Facility Home

Facility ID: 999117 · ABC · Reporting period: 2012

« Back to Emission Source Process Reference

Fugitive Components

This section contains emission data relative to leakage from process components as specified in Rule 1172 and Rule 1176. Please visit the supplemental instructions for more information on component identification, count, and emission calculation. Detailed instructions are available by clicking on Help icon in the tool bar.

Optional: Mark as Completed

Process	AER Device ID	Permit Device ID	A/N	Process ID	Rule #	Component Type
Open	ES1	D1	123456	P1	1173	Valves Gas/Vapor

Click here to [delete](#) this process.

Throughput

[Open](#)

Criteria Emissions (lbs)

Pollutant	EF	Unit	EF Data Source	Overall CE	Emissions
Open	VOC	lbs /			

Toxic (TAC/ODC) Emissions (lbs)

TAC/ODC Group	CAS #	EF	Unit	EF Data Source	Overall CE	Emissions
Add New						

« Back to Emission Source Process Reference

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Next, go to “Throughput”, click the “Open” link and fill out the “Number of components” field, and click “Save“. As mentioned before, facility ABC Unit 1 has 5 valves in gas/vapor service.

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Fugitive Components

This section contains emission data relative to leakage from process components as specified in Rule 1172 and Rule 1176. Please visit the supplemental instructions for more information on component identification, count, and emission calculation. Detailed instructions are available by clicking on Help icon in the tool bar.

Optional: Mark as Completed

Process	AER Device ID	Permit Device ID	A/N	Process ID	Rule #	Component Type
Open	ES1	D1	123456	P1	1173	Valves Gas/Vapor

Click here to [delete](#) this process.

Throughput

[Open](#)

Criteria Emissions (lbs)

Pollutant	EF	Unit	EF Data Source	Overall CE	Emissions
Open	VOC	lbs /			

Toxic (TAC/ODC) Emissions (lbs)

TAC/ODC Group	CAS #	EF	Unit	EF Data Source	Overall CE	Emissions
Add New						

« Back to Emission Source Process Reference

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Save the entry, then go to “Criteria emissions” and click “Open”.

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Fugitive Components

This section contains emission data relative to leakage from process components as specified in Rule 1172 and Rule 1176. Please visit the supplemental instructions for more information on component identification, count, and emission calculation. Detailed instructions are available by clicking on Help icon in the tool bar.

Process Optional: Mark as Completed

	AER Device ID	Permit Device ID	A/N	Process ID	Rule #	Component Type
Open	ES1	D1	123456	P1	1173	Valves Gas/Vapor

Click here to [delete](#) this process.

Throughput

	Annual Throughput
Open	5.0 components

Criteria Emissions (lbs)

	Pollutant	EF	Unit	EF Data Source	Overall CE	Emissions
Open	VOC		lbs / components			

Toxic (TAC/ODC) Emissions (lbs)

	TAC/ODC Group	CAS #	EF	Unit	EF Data Source	Overall CE	Emissions
Add New							

« Back to Emission Source Process Reference

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For the purpose of this exercise, since no screening data are available, the AQMD default emission factors (EF) will be used; for valves in gas/vapor service, EF is 72 lb/component/year. Note that emissions are calculated automatically. In the mandatory field “Emission Factor Data Source”, select AQMD default; user can also comment on the emission factor in case other than default EF are used.

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Fugitive Components

This section contains emission data relative to leakage from process components as specified in Rule 1172 and Rule 1176. Please visit the supplemental instructions for more information on component identification, count, and emission calculation. Detailed instructions are available by clicking on Help icon in the tool bar.

Open Criteria Emission Information - Fugitive Components

AER Device ID	Permit Device ID	A/N	Process ID	Rule #	Component Type
ES1	D1	123456	P1	1173	Valves Gas/Vapor

Annual Throughput
5.0 components

Pollutant
VOC - Volatile Organic Compounds

Emission Factor (EF)
72.0000 * lbs/components

Emission Factor Comment

Emission Factor Data Source
AQMD default *

Emissions
360.00 lbs

[Save](#) [Cancel](#)

Toxic (TAC/ODC) Emissions (lbs)

	TAC/ODC Group	CAS #	EF	Unit	EF Data Source	Overall CE	Emissions
Add New							

« Back to Emission Source Process Reference

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Click the “Save” button; if the VOC stream contains any toxic air compounds (TAC) or ozone depleting compounds (ODC), click on the “Add New” button under Toxic (TAC/ODC) Emissions. In the next window, select the TAC/ODC compound from the drop-down list.

In this example, the gas/vapor stream is assumed to contain 1% benzene by weight based on material balance. Therefore, the EF is 0.72 lbs/component. In the “Emission Factor Data Source” field, select the appropriate source from the drop-down list, then click the “Save” button.

South Coast AQMD Air Quality Management District

Facility ID: 999117

Facility ID: 999117 - ABC - Reporting period: 2012

Open Toxic (TAC/ODC) Emission Information - Fugitive Components

AER Device ID	Permit Device ID	A/N	Process ID	Rule #	Component Type
ES1	D1	123456	P1	1173	Valves Gas/Vapor

Annual Throughput
5.0 components

TAC/ODC Toxic Pollutants / Ozone Depleting Compounds

Pollutant: 2 - Benzene

TAC Group: 2 - Benzene

CAS # (Pollutant): 71432 - Benzene

Emission Factor (EF): 7.20000e-1 * lbs/components

Emission Factor Comment:

Emission Factor Data Source: Material Balance

Emissions: 3.600e+0 lbs

Save Cancel

Toxic (TAC/ODC) Emissions (lbs)

TAC/ODC Group	CAS #	EF	Unit	EF Data Source	Overall CE	Emissions
Add New						

Back to Emission Source Process Reference

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Click on the “Save” button and the following screen appears:

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Facility ID: 999117 - ABC - Reporting period: 2012

Back to Emission Source Process Reference

Fugitive Components

This section contains emission data relative to leakage from process components as specified in Rule 1172 and Rule 1176. Please visit the supplemental instructions for more information on component identification, count, and emission calculation. Detailed instructions are available by clicking on Help icon in the tool bar.

Optional: Mark as Completed

Process

AER Device ID	Permit Device ID	A/N	Process ID	Rule #	Component Type
Open ES1	D1	123456	P1	1173	Valves Gas/Vapor

Click here to delete this process.

Throughput

Annual Throughput
Open 5.0 components

Criteria Emissions (lbs)

Pollutant	EF	Unit	EF Data Source	Overall CE	Emissions
Open VOC	72.00000	lbs / components	AQMD default		360.00

Toxic (TAC/ODC) Emissions (lbs)

TAC/ODC Group	CAS #	EF	Unit	EF Data Source	Overall CE	Emissions
Open Benzene	71432	7.20000e-1	lbs / components	Material Balance		3.600e+0

Add New

Back to Emission Source Process Reference

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Air Quality Management District

AER Home

Access Facility

Facility Home

Facility ID: 999117 · ABC · Reporting period: 2012

Facility ID: 999117

Build Reporting Structure

Facility Information

Build Reporting Structure

Combustion Fuels

Emission Sources (ES)

Report Process/Emissions

Summary

Data Validation

Report

Emission Sources (ES) Classification

This section contains facility permit profile. Please make sure that every device has a specified Emission Source (ES). New emission sources can also be added.

EPA TANKS Software DATA IMPORT - [Click here](#) for more instructions.

Process References

A/N	Permit NO	Permit Device ID	Permit Device Description	AER Device ID	ES Name	Source Group	Emissions?	Equipment	ES Status
123456	F12345	D1		ES1	Unit 1	Fugitive Components	Y	Fugitive	Work in progress

Process ID	Source Group	Process Name	Process Status	Operation Type
P1	Fugitive Components		Completed	routine
P2	Fugitive Components		Work in progress	routine
P3	Fugitive Components		Work in progress	routine
P4	Fugitive Components		Work in progress	routine
P5	Fugitive Components		Work in progress	routine
P6	Fugitive Components		Work in progress	routine
P7	Fugitive Components		Work in progress	routine
P8	Fugitive Components		Work in progress	routine

OK

Open

123456

F12345

D1

ES1

Unit 1

Fugitive Components

Y

Fugitive

Work in progress

Reference

For unpermitted emission sources that are not listed, user must add those sources and report emissions by clicking on the “Add New Emission Source” link:

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The following screen will appear. Then, repeat the steps taken described before to report emissions for non-permitted equipment, the only difference being that the application and permit fields remain blank:

South Coast

AQMD

Air Quality Management District

AER Home

Access Facility

Facility Home

Facility ID: 999117 · ABC · Reporting period: 2012

Facility ID: 999117

Facility Information

Build Reporting Structure

Combustion Fuels

Emission Sources (ES)

Report Process/Emissions

Summaries

Data Validation

Report Submission

Edit Emission Source

Providing correct information and proper selection categories would help to classify emission source.

Permitted

☐

A/N

Permit No

Permit Device ID

D2

AER Device ID

will be assigned upon saving

ES Name

Operating ES Status

Normal Operation

*

Comment

Unpermitted equipment

Emission Source Group

Determine Emission Source Group Type

*

Design Capacity

?

Save and return to List of Emission Sources

or

Save and proceed to Process Reporting

or

Cancel

Optional: Save and Mark as Completed

[AQMD web site Home](#)

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[Ecotek Web Site](#)

[Report a Bug](#)